NEW RESEARCH

# Sexual Risk Behavior Among Youth With Bipolar Disorder: Identifying Demographic and Clinical Risk Factors

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**Objective:** This study aims to document rates of sexual activity among youth with bipolar spectrum disorder (BD) and to examine demographic and clinical factors associated with first sexual activity and sexual risk behavior during follow-up.

**Method:** The sample was drawn from the Course and Outcome of Bipolar Youth (COBY) study of 413 youth 7 to 17 years at baseline who met criteria for bipolar spectrum disorder according to the Schedule for Affective Disorders and Schizophrenia for School-Aged Children. Psychiatric symptoms during follow-up were assessed using the Adolescent Longitudinal Interview Follow-Up Evaluation (ALIFE). Sexual behavior and level of sexual risk (e.g., unprotected sex, multiple partners, and/or partners with known sexually transmitted infections) were assessed by trained evaluators using the ALIFE Psychosocial Functioning Scale. Analyses were conducted in relation to first sexual behavior during follow-up and then to subsequent sexual behaviors (mean 9.7 years, standard deviation 3.2).

**Results:** Sexually active COBY youth (n = 292 of 413; 71%) were more likely females, using substances, and not living with both parents. Consistent with findings among healthy youth, earlier first sexual activity in the sample was significantly associated with low socioeconomic status, female sex, comorbid disruptive behavior disorder, and substance use. As with healthy youth, sexual risk behavior during follow-up was significantly associated with non-Caucasian race, low socioeconomic status, substance use, and history of sexual abuse. Of those COBY youth who were sexually active, 11% reported sexual assault or abuse, 36% reported becoming pregnant (or the significant other becoming pregnant), and 15% reported having at least 1 abortion (or the significant other having an abortion) during follow-up. Hypomanic symptoms during follow-up were temporally associated with the greatest risk for sexual risk behavior.

**Conclusion:** Demographic and clinical factors could help identify youth with bipolar spectrum disorder at significantly greatest risk for sexual activity and sexual risk behavior. Attending to sexual risk behaviors in this population is warranted.

**Key words:** bipolar disorder, sexual risk behavior, sexual activity

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Given that nearly half of US high school students report being sexually active,[1] sexual risk behaviors including lack of contraceptive use, acquisition of sexually transmitted infections (STIs), and unplanned pregnancies and abortions in youth are of great public health import.

One subgroup of youth who engage in risky sexual behaviors at increased rates is youth with psychiatric disorders, particularly those with externalizing disorders.[2,3] Youth in psychiatric care are as much as 3 times more likely to report early sexual debut and risky sex (multiple partners and inconsistent condom use) and have 4 times greater risk of contracting STIs.[4] Females in psychiatric care report early pregnancy at a rate 3 times higher than healthy youth.[5] Although prior cross-sectional studies have implicated mood, anxiety, disruptive, personality, and substance use disorders (SUDs) specifically in sexual risk behaviors,[3,6,7] little is known about the temporal association between specific psychiatric disorders in youth and sexual risk behavior. Greater understanding of this association could inform prevention strategies for those at greatest risk.

Youth with bipolar spectrum disorder (BD) can be especially vulnerable when considering manic and depressive episodes are associated with sexual risk behavior. Youth in psychiatric care who display subthreshold hypomania symptoms are more likely than youth with other psychiatric disorders to be sexually active, engage in unprotected sex, have at least 2 sexual partners, and test positive for an STI.[8,9] Furthermore, specific symptoms of mania—namely hypersexuality and impulsivity—are, in general, associated with greater sexual risk in youth.[4,9,10] Depressive symptoms in youth are associated with earlier sexual debut,[11,12] which in turn is linked to greater risk for STIs and unplanned pregnancy.[13,14] Studies of adults have yielded similar conclusions: those with BD are more likely to contract STIs[15] and report more unplanned pregnancies and/or abortions in their lifetime.[16]

However, prior studies were predominantly retrospective and did not examine the temporal association between sexual risk behaviors and mood symptoms. Prospectively examining the temporal association of mood symptoms and sexual risk behavior in youth with BD is essential to

identifying mood-dependent risk and informing effective prevention and intervention approaches for this population.

For the first time in the literature, the present study aimed to prospectively document sexual activity in youths with BD and explore sexual risk behavior (e.g., unprotected sex, multiple partners, nonmonogamous partners, and partners with known STIs) and its association with demographic and clinical risk factors. Using data from the longitudinal, multisite Course and Outcome of Bipolar Youth (COBY) study, we examined sexual activity and risk behavior from first sexual activity in the study through follow-up (mean 9.7 years, standard deviation [SD] 3.2; median 10.7). We hypothesized age at first sexual activity and sexual risk behavior during follow-up would be associated with clinical (e.g., BD subtype, age at onset) and demographic (e.g., sex, race) factors, and sexual risk behavior during follow-up would be temporally associated with hypomanic and depressive symptoms.

## METHOD

A detailed description of the methodology used in the COBY study has been described previously.[17,18] The present analyses included 413 youth 7 to 17 years old who met criteria at baseline for *DSM-IV* bipolar I (BP-I), BP-II, or operationally defined BP not otherwise specified (NOS)[18] according to the Schedule for Affective Disorders and Schizophrenia for School-Aged Children–Present and Lifetime Version (K-SADS-PL).[19] Participants were primarily recruited from outpatient clinics (68%) at the 3 study sites and were enrolled independent of current mood state or treatment status. Youths with schizophrenia, IQ lower than 70, autism, and mood disorders secondary to substances, medications, or medical conditions were excluded.

### Procedure

Each study site's institutional review board approved the study before enrollment of any participant, and youths and their parents or primary caretakers provided written informed assent and consent, respectively, after receiving a complete description of the study procedures.

*Diagnostic Evaluation.* At baseline, youths and parents or primary caretakers were interviewed for current and lifetime psychiatric disorders using the K-SADS-PL[19]; the Kiddie Mania Rating Scale (K-MRS)[20] and the depression section of the K-SADS-P[21] were used to yield additional information on mood symptom severity. Research staff trained to reliability on the diagnostic evaluations conducted all assessments; child psychiatrists or psychologists confirmed diagnoses. The overall K-SADS-PL κ coefficients for psychiatric disorders were at least 0.8; intraclass correlation coefficients for the K-MRS and the K-SADS-P depression section were at least 0.95.

*Illness Severity.* Changes in psychiatric symptoms during follow-up were assessed retrospectively using the Adolescent Longitudinal Interview Follow-Up Evaluation (ALIFE),[22] which yields excellent reliability and external validity.[23,24] Week-by-week symptom ratings were attained using this instrument's Psychiatric Status Rating Scales (PSRs), which use numeric values operationally linked to *DSM-IV* criteria. Interviewers gathered information about *DSM-IV* criteria, rated severity of any comorbid diagnoses for which participants previously met full criteria (1 = no symptoms, 2 = subthreshold *DSM-IV* symptoms; 3 = full threshold *DSM-IV* criteria), and rated any new diagnoses for which participants met threshold criteria. Consensus scores incorporated all available data from youths and parents; in the event of conflicting information, summary ratings were guided by clinical judgment. PSR consensus ratings were confirmed by a child psychiatrist or psychologist subsequent to the interview. Intraclass correlation coefficients for ALIFE syndromal and subsyndromal mood disorders were at least 0.75.

*Medications.* Weekly ratings of psychotropic drugs prescribed, dosing, and adherence were obtained through the ALIFE Psychotropic/Auxiliary Drugs/Electroconvulsive Therapy Treatment Schedule.

*Demographics.* Socioeconomic status (SES) was ascertained using the Hollingshead 4-factor criteria.[25] Pubertal status was assessed using the Self-Rating Scale for Pubertal Development[26]; this scale was completed by parents for children 7 to 9 years old and thereafter by the children themselves (with assistance if needed) at all follow-ups.

*Sexual Functioning.* Monthly sexual functioning ratings were collected using the ALIFE Psychosocial Functioning Scale (PSF), yielding the following domains: sexual orientation (0 = no information/unsure; 1 = heterosexual; 2 = homosexual; 3 = bisexual), frequency of sexual activities (1 = ≥3 times weekly; 2 = at least once a week; 3 = at least once a month; 4 = never [i.e., not at all in the past month]; 5 = no information), number of partners (1 = 1; 2 = >1; 3 = no information/not applicable), and level of sexual risk (1 = practices safe sex: uses protection against STIs and unwanted pregnancy; 2 = engages in moderate-risk sexual behavior: any unprotected sex without a desire to conceive or other moderate risk sexual behavior, e.g., unprotected sex with a partner presumed, but not confirmed, to be monogamous; 3 = engages in high-risk sexual behavior: includes any unprotected sex with a monogamous partner or other high-risk behavior, e.g., unprotected sex with a monogamous partner known to have an STI; 4 = no information). Evaluators were instructed to consider all potentially risky sexual behaviors when providing their "level of sexual risk" rating, and all ratings were reviewed with an attending psychiatrist or psychologist to yield a consensus score. Sexual activity ratings were dichotomized each month during follow-up (i.e., sexually active [score ≤3] or not sexually active [score 4 or 5]). Intraclass correlation coefficients for the PSF were at least 0.94.

*Sexual Trauma.* History of sexual trauma or abuse was assessed at study intake and at every follow-up using the Traumatic Events form derived from the K-SADS-PL. The measure also yields data on timing of the event (i.e., follow-up month), enabling temporal specificity during follow-up.

*Pregnancy and Abortion.* Items documenting pregnancy and abortion in the year preceding follow-up were extracted from the self-report Life Events Checklist (for participants <18 years old)[27] and Life Experiences Survey (for participants >18 years old)[28] completed at each assessment.

*Family Environment.* Family environment during the past 3 months was assessed using the parent and child Family Adaptability and Cohesion Scale–II self-reports (FACES-II)[29] and the parent and child Conflict Behavior Questionnaire self-reports (CBQ).[30]

### Data Analysis

*First Sexual Activity During Follow-Up.* We used Cox proportional hazard models to analyze age continuously (i.e., month of follow-up) at first sexual activity in the study, controlling for age at intake. From this model, the demographic variables theorized to potentially confound the effects of clinical predictor variables on outcome (i.e., sex, race, SES, age at BD onset, BD subtype, and history of sexual abuse) were first analyzed independently; we controlled for those significant at a $p$ value less than .10 in subsequent models (i.e., only sex, SES, and history of sexual abuse). We fit a single Cox regression model to analyze the effects of clinician-rated presence of threshold comorbid disorder using the PSR (specifically attention-deficit/hyperactivity disorder [ADHD], disruptive behavior disorder [DBD],